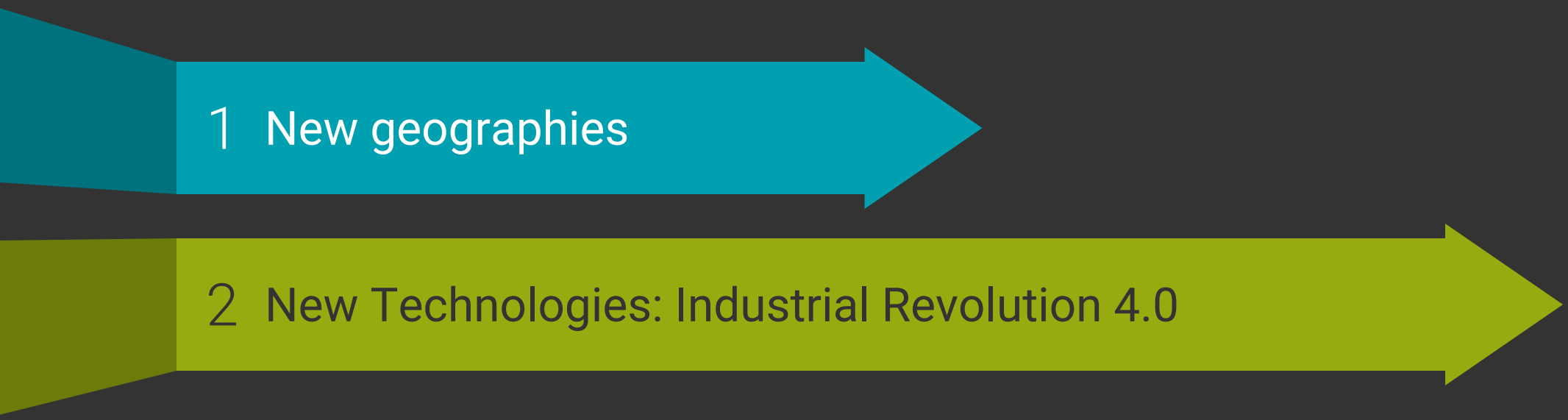
Globalization: Think Forward



My interests

From International Finance and Monetary Economics with Game Theory and Econometrics to “Data Science for International Business”

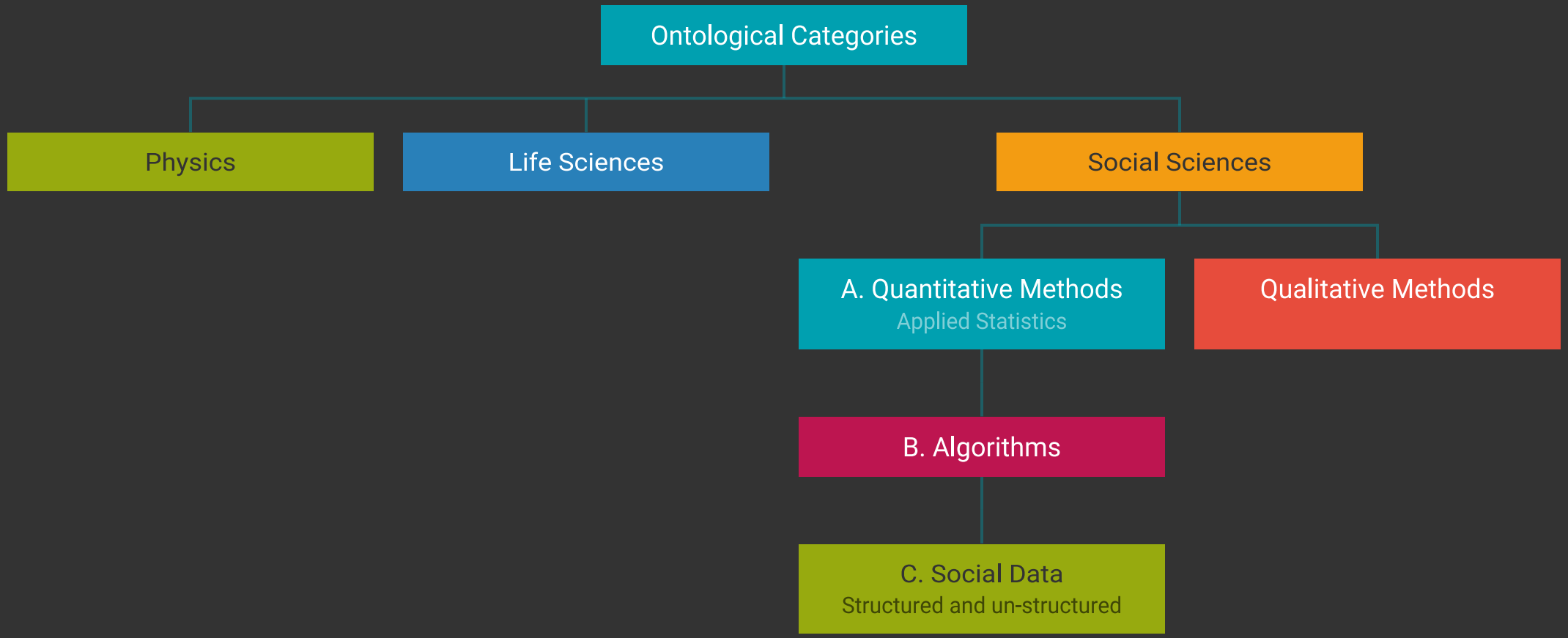
From the study of a field with a methodology to the study of “how a new methodology that may help foster our understanding of social dynamics”

STEM versus Managers?

Open Science

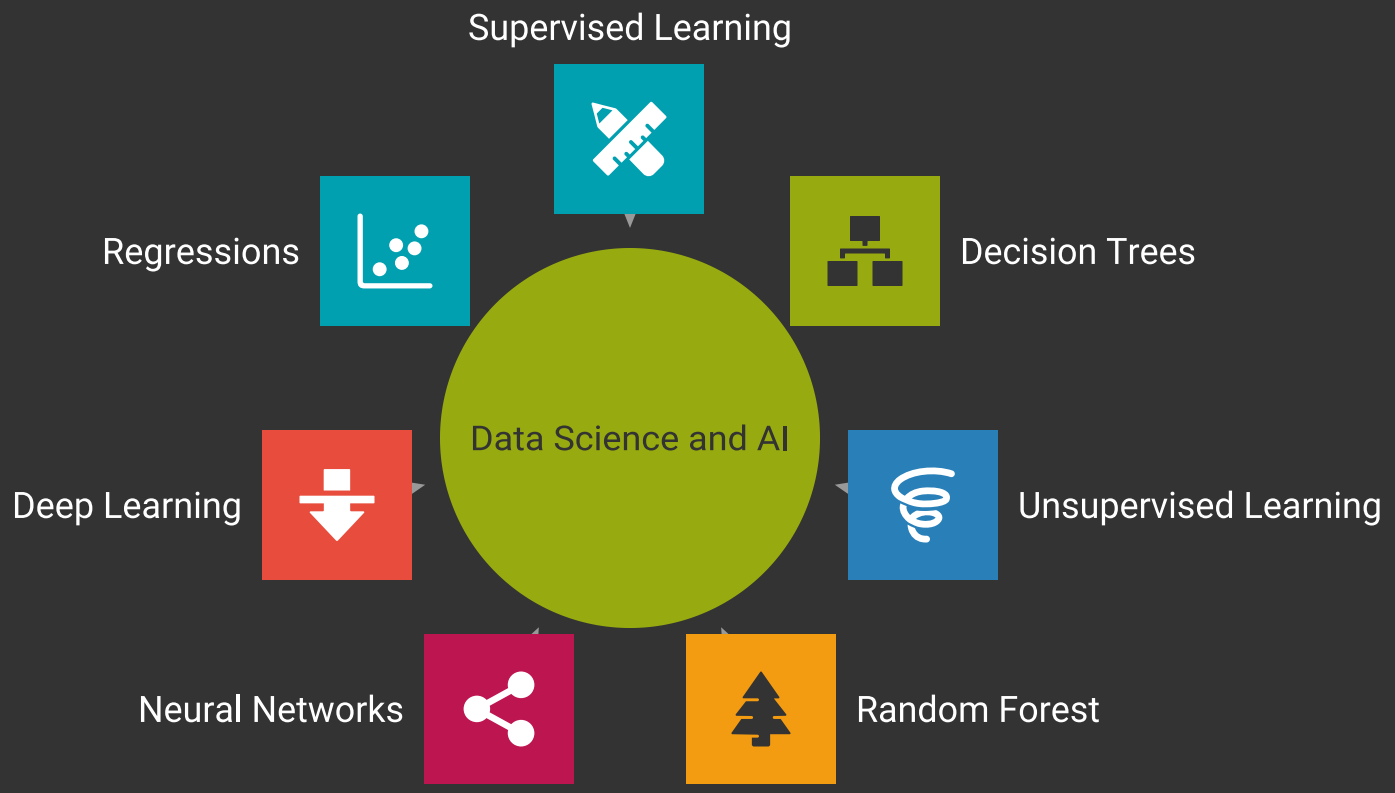
Birth of a new field

Social Data Science

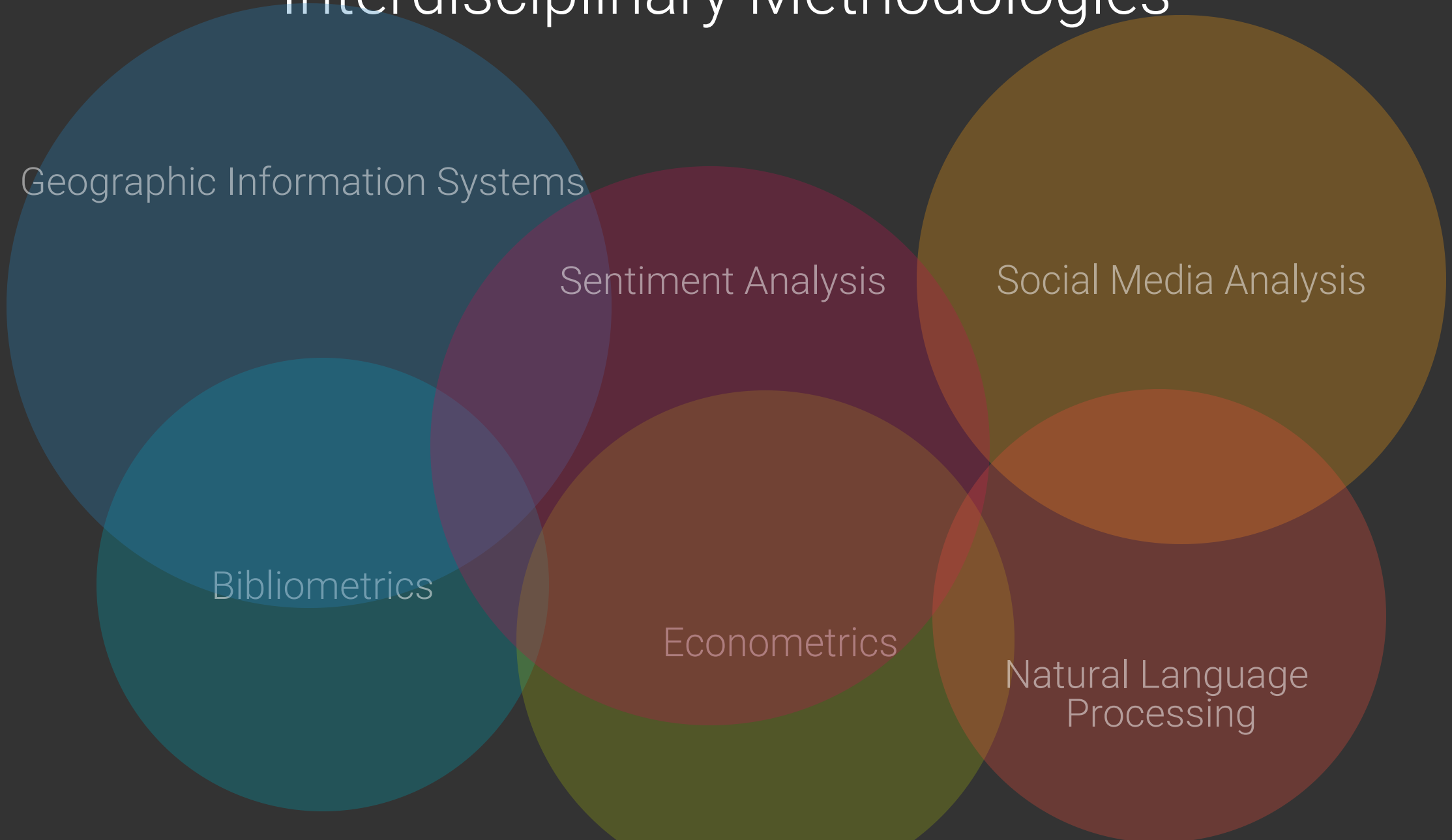


Social Data Science = A + B + C

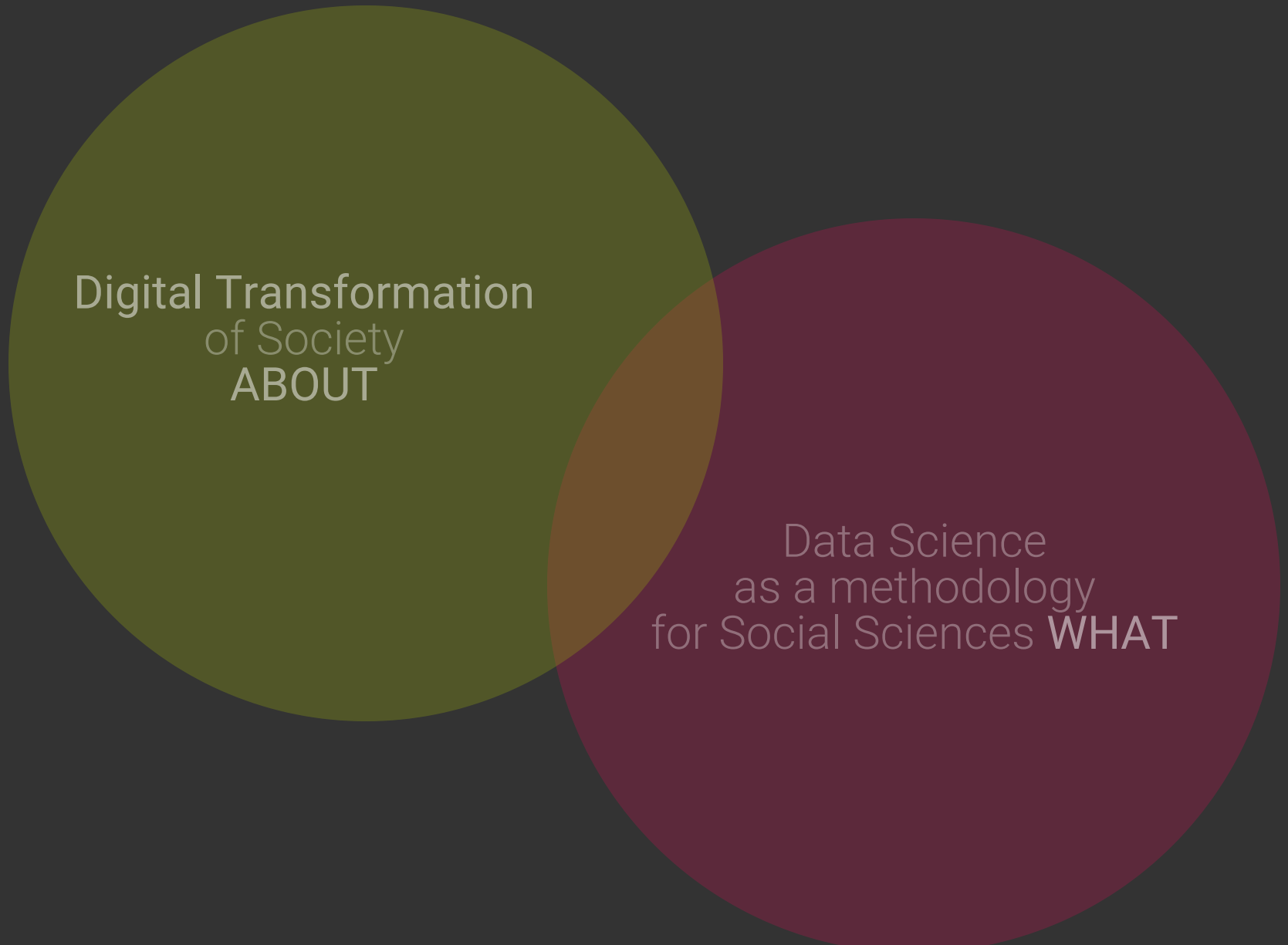
AI Methodologies



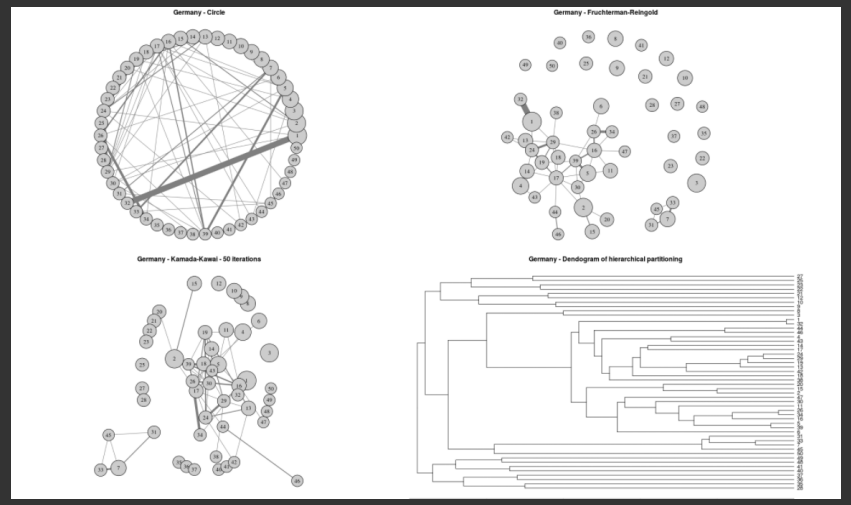
Interdisciplinary Methodologies

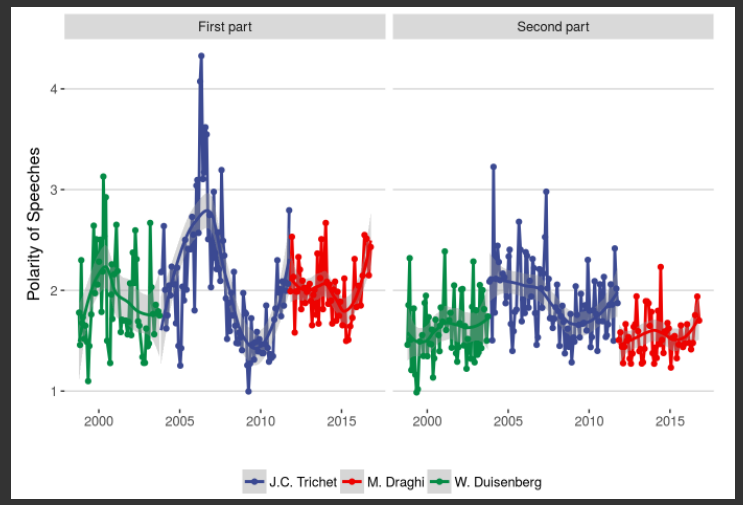


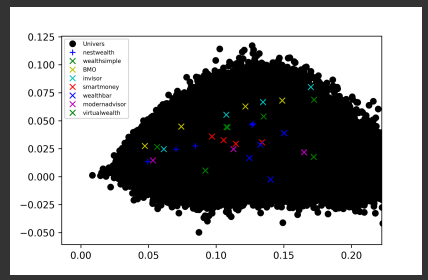
Social Data Science: The Missing Link

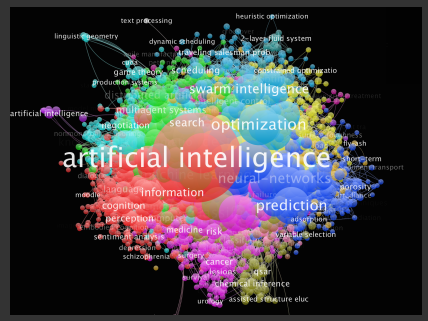


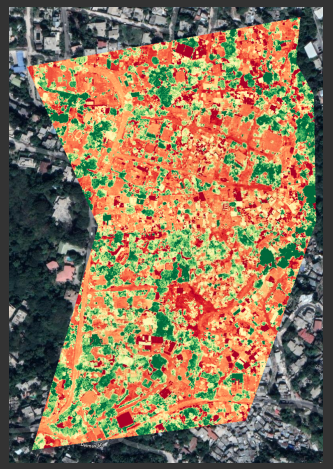
Research Projects Using Data Science

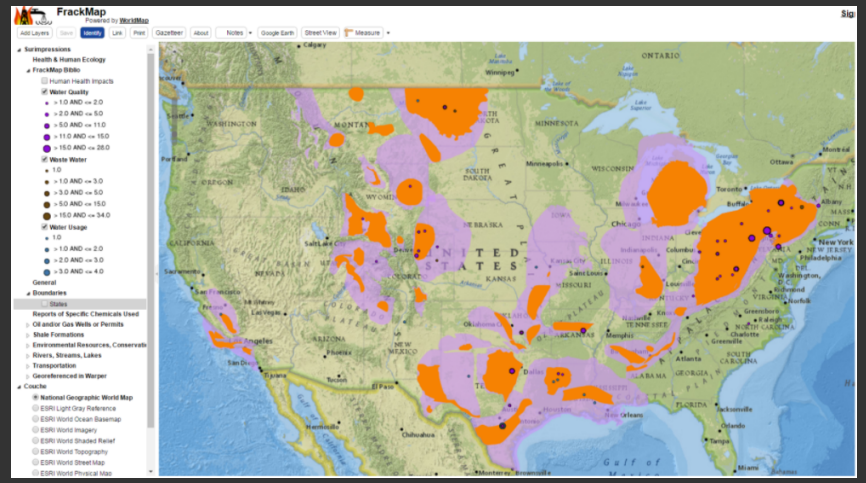

Germany - Circle
Germany - Fruchterman-Reingold
Germany - Kamada-Kawai - 50 iterations
Germany - Dendogram of hierarchical partitioning

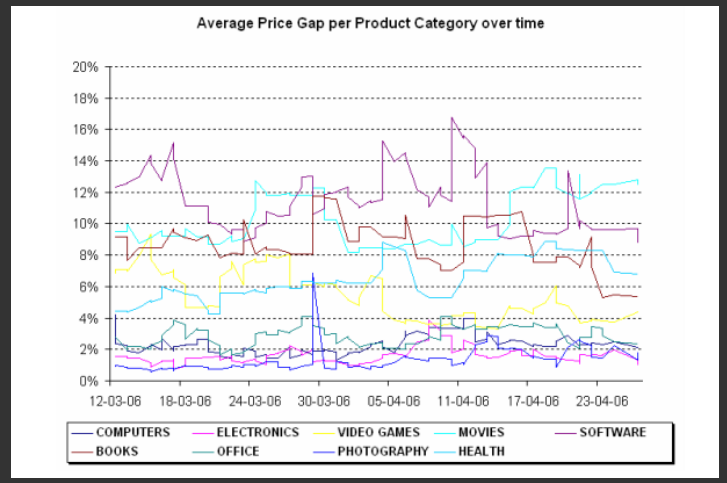

First part
Second part
Polarity of Speeches
2000
2005
2010
2015
J.C. Trichet
M. Draghi
W. Duisenberg

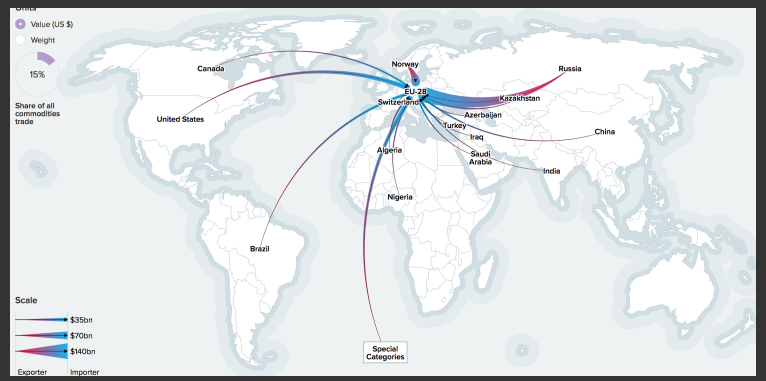

Univers
nestwealth
wealthsimple
BMO
invisor
smartmoney
wealthbar
modernadvisor
virtualwealth


artificial intelligence
optimization
swarm intelligence
neural networks
prediction
information
cognition
perception
search
medicine
risk
cancer
lesions
chemical inference



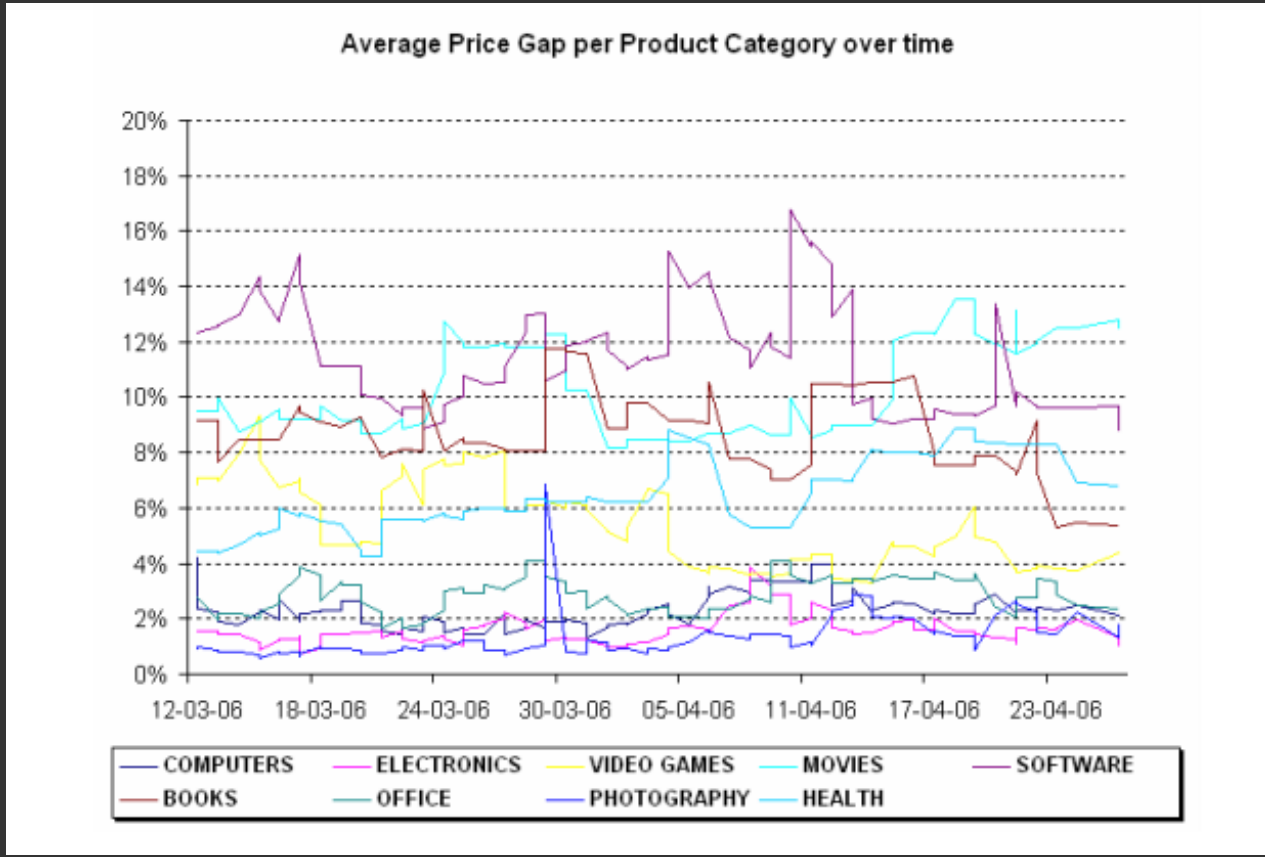

FrackMap


Average Price Gap per Product Category over time
12-03-06
18-03-06
24-03-06
30-03-06
05-04-06
11-04-06
17-04-06
23-04-06
COMPUTERS
ELECTRONICS
VIDEO GAMES
MOVIES
SOFTWARE
BOOKS
OFFICE
PHOTOGRAPHY
HEALTH


Value (US $)
Weight
15%
Share of all commodities trade
Canada
Norway
Russia
United States
Switzerland
Kazakhstan
Azerbaijan
Turkey
Iraq
China
Algeria
Saudi Arabia
India
Nigeria
Brazil
Scale
$35bn
$70bn
$140bn
Exporter
Importer
Special Categories

Structured Data

Industrial Organization / Monetary Policy

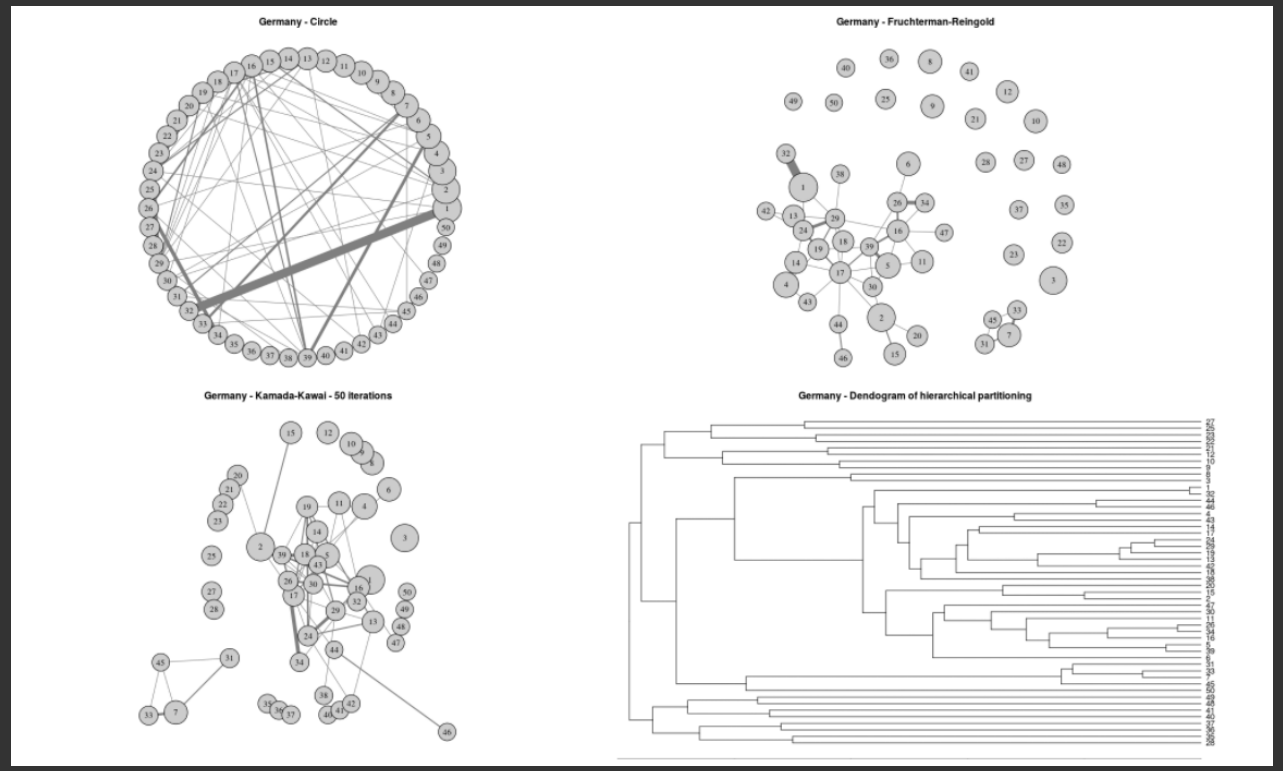


- RQ: How to detect systematic differences in price dispersion across sectors? What are the reasons of such differences?
- Methodology: Econometrics, Web Scraping
- Category: Nowcasting, Inflation, Price dispersion
- The Wow Effect: From millions of prices about 30'000 products, real-time measures of Market Thickness and the Value of Information
- Literature:

"Are Online and Offline Prices Similar? Evidence from Large Multi-Channel Retailers", Alberto Cavallo, American Economic Review, January 2017, Vol 107 (1)

"The Noisy Monopolist: Imperfect Information, Price Dispersion and Price Discrimination", Steven Salop, Review of Economic Studies, 1977, vol. 44, issue 3, 393-406

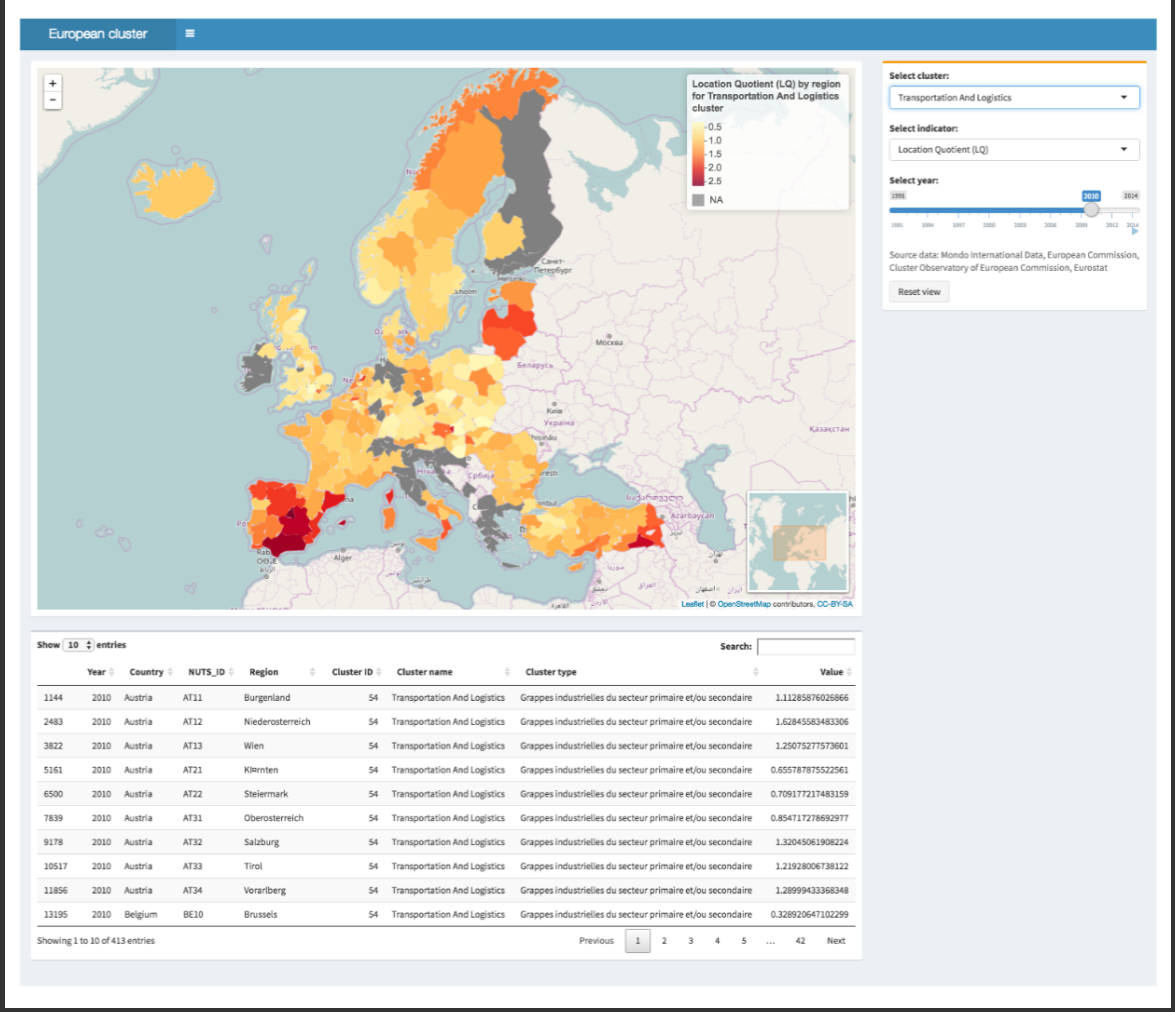
Finance



- RQ: Using boards of directors as a proxy for knowledge pipelines between financial firms, how can proxy systemic risk in the financial industry?
- Methodology: Network Analysis
- Partner Authors and Institutions: CIRANO, HEC Montreal, AMF (Financial Markets Regulator)
- The Wow Effect: 43,499 directors; 2,209 financial firms; 52 countries can be visualized to revealed social ties across countries
- Category: Systemic Risk, Financial Industry, Governance
- Literature:

Kogut, B. and Colomer, J. (2012) 'Is there a global small world of owners and directors?', in Kogut, B. (Ed.): The Small Worlds of Corporate Governance, pp.259–299, The MIT Press, Cambridge.

Economic Integration

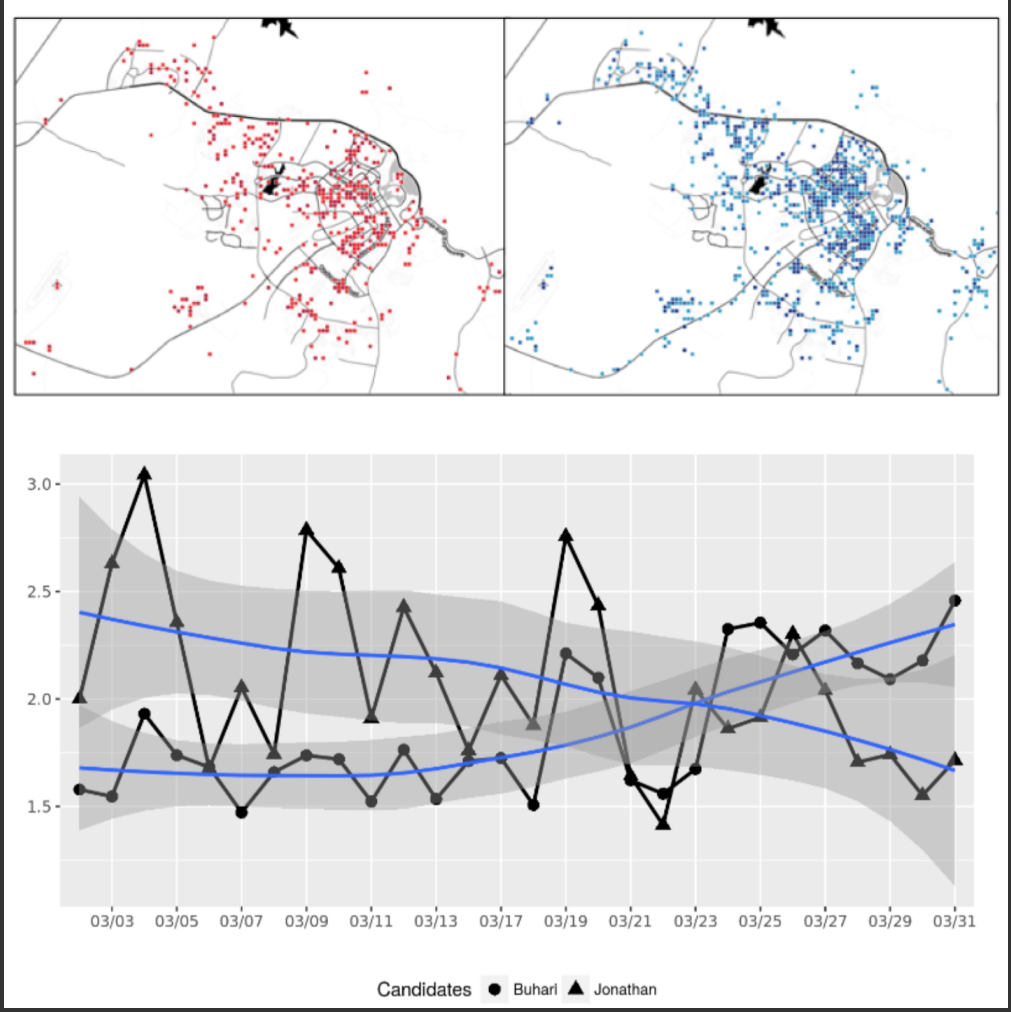


- Can we observe a regional specialization - or convergence - dynamic in Europe through cluster life cycle?
- The Wow Effect: +5M clusters data collected; 553'007 European observations used (67 clusters, 279 regions, 36 countries, 20 years, 6 indicators) ; over 10,000 maps created ; regional specialisation dynamic in developed economies (Western Europe) ; convergence dynamic in developing economies (Eastern Europe) due to a catching-up effect
- Category: Regional Integration, Clusters, Convergence, Geographical Economy, Data Science
- Literature

Sala-i-Martin, Xavier. 1996a. “Regional Cohesion: Evidence and Theories of Regional Growth and Convergence.” European Economic Review 40:1325-1352.

Unstructured Data

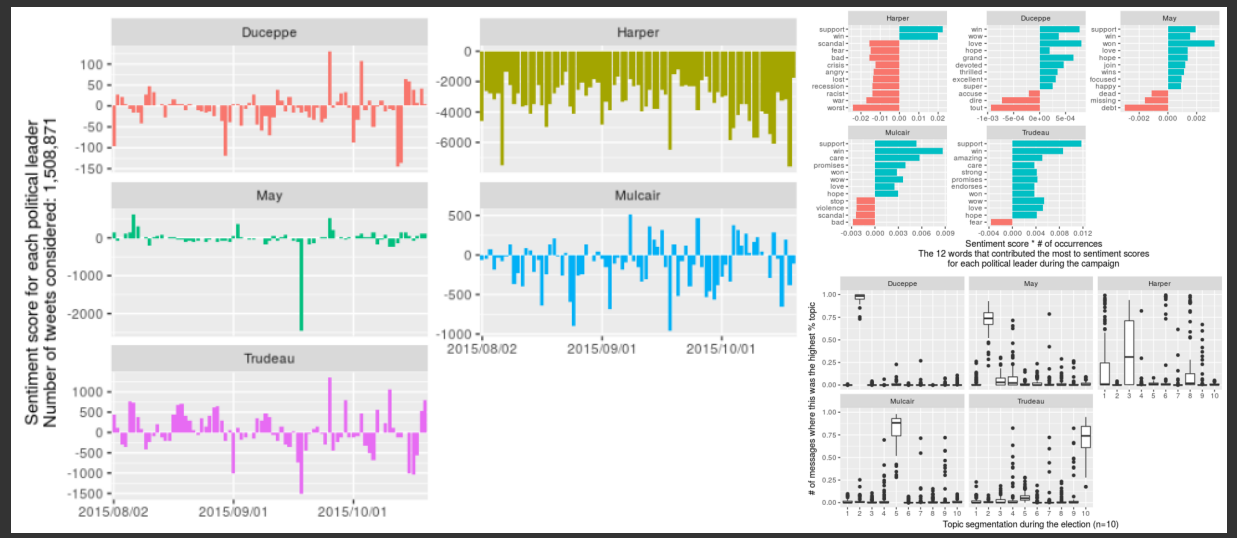
Political Science



- RQ: In countries where institutions do not have the highest level of standards, can we use social media to gather information on an incoming election?
- Methodology: Econometrics, Text mining, 3.8 million tweets
- The Wow Effect: 2 days before the election, a change in the electoral dynamics has been noticed, which at the end was anticipating the results of the election
- Category: Political Risk
- Literature:

KHEMANI, S. (2015): "Buying Votes vs. Supplying Public Services: Political Incentives to Under-Invest in Pro-Poor Policies," Journal of Development Economics, 117, 84–93.

Political Science



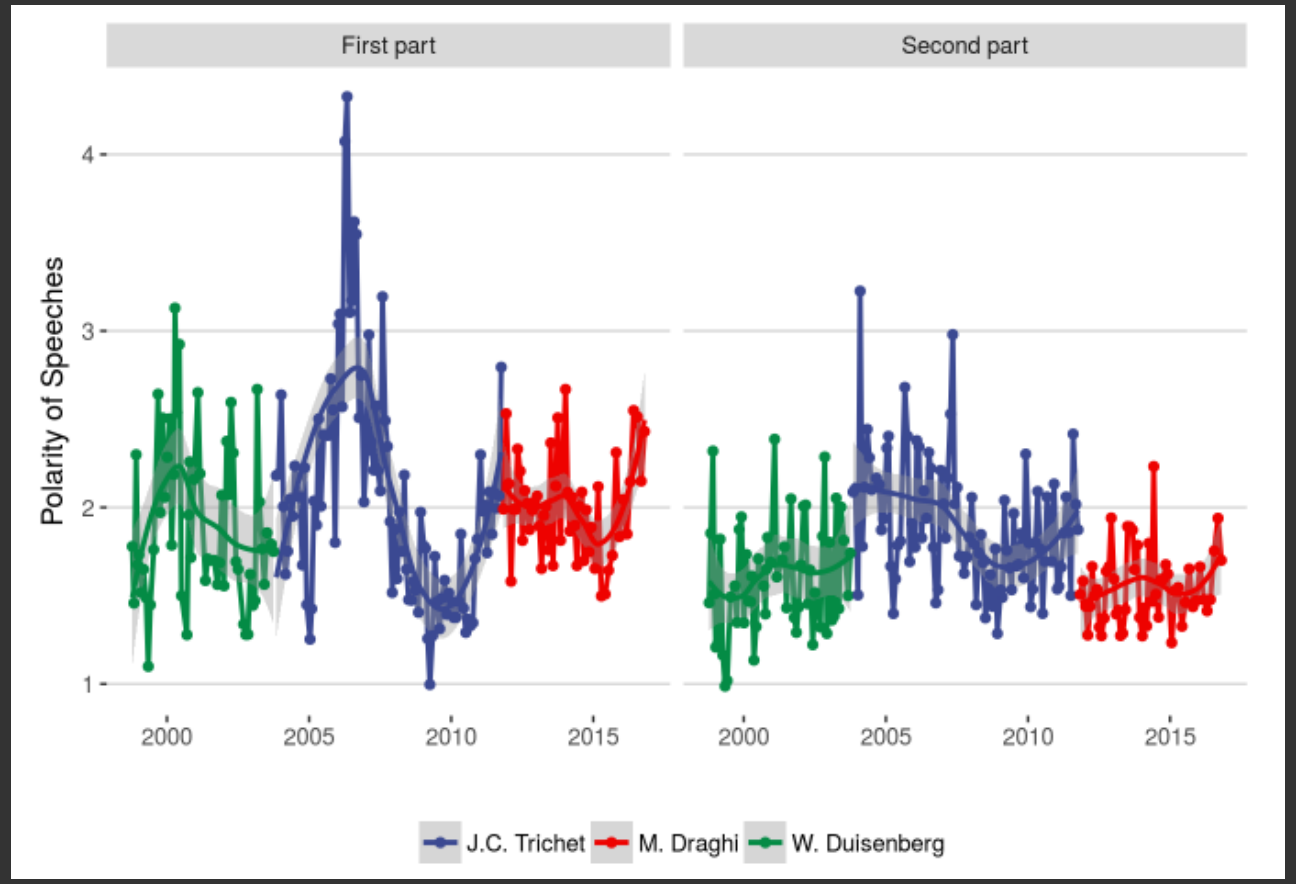
- RQ: Despite being third in vote intention at the start of the campaign, Justin Trudeau won a majority victory. During the 2015 General Election in Canada, how were each political leader perceived?
- Methodology: Unsupervised Learning, Social Media Analysis, Linguistics
- The Wow Effect: Scandals at the start of the campaign lasted for a month and were constantly associated to the incumbent candidate
- Category: Political Risk, Reputational Risk
- What about corporate reputation?

Migrations

- RQ: Mapping the conversation in Europe about the refugee crisis.
- Methodology: Geographic Information Systems, Text Analysis, Social Media Analysis
- The Wow Effect: Possibility to add a spatial dimension to the conversations (unstructured data), as well as combining with traditional data such as the number of refugees, the country of origin or the route of destination.
- Literature:

  “Measuring the Reliability of Hate Speech Annotations: The Case of the European Refugee Crisis”, Ross, Michael Rist, Guillermo Carbonell, Benjamin Cabrera, Nils Kurowsky, Michael Wojatzki, Arxiv, 2017

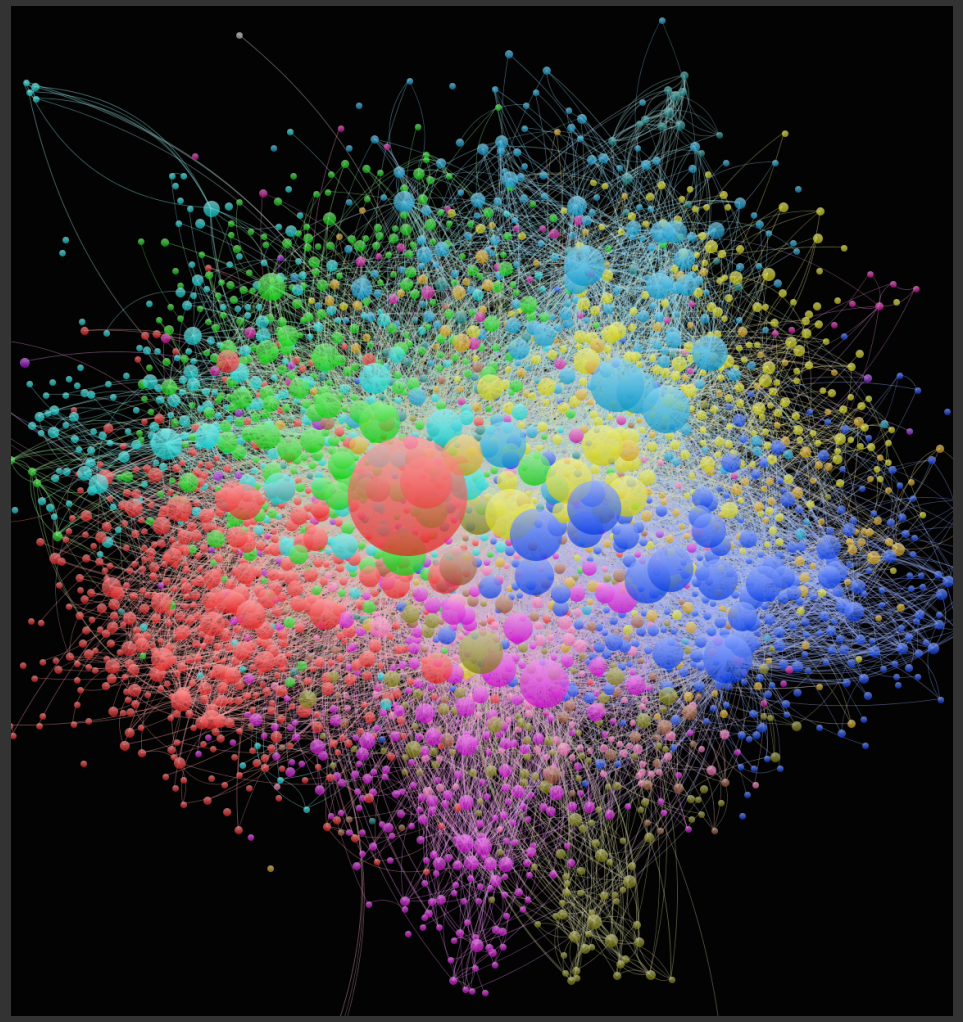
Monetary Policy



- What is the reaction of the European Central Bank and its Presidents to the events occurring in the Eurozone?
- Methodology: Linguistics, Text Analysis, LDA
- Category: Communication of Institutions, Europe, Central Bank
- The Wow Effect: War and Peace + The Wealth of Nations
- Literature:

Amaya, J.-Y. Filbien "The similarity of ECB's communication" Social Science Research Network, Rochester, NY (2015)

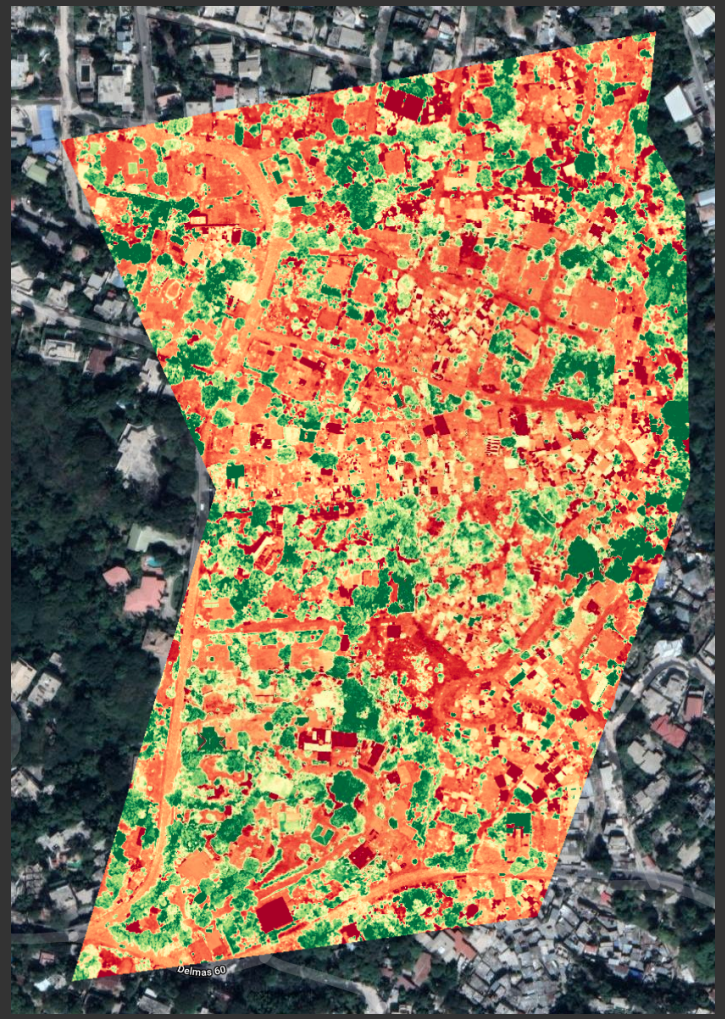
Innovation



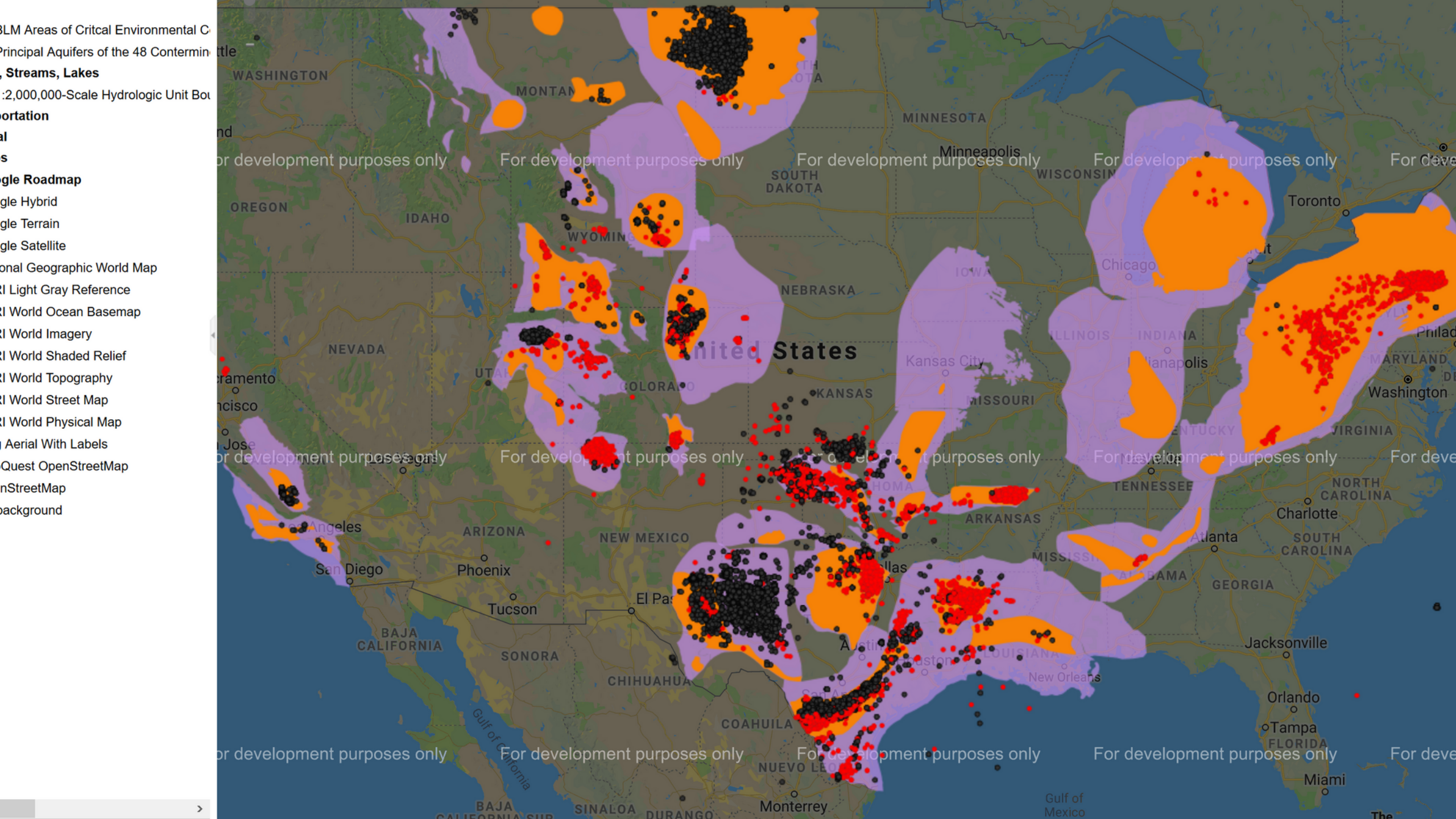
- RQ: How to assess whether innovations of China's pharmaceutical industry differ compared to innovations elsewhere in terms of the nature and value of patents?
- Methodology: Text Analysis, Unsupervised Learning, LDA
- The Wow Effect: More than 100,000 patents are analyzed to reveal the most important firms and institutions in the pharmaceutical industry in China, as well as the nature of patents.
- Category: Innovation, Emerging Markets
- Literature:

  "Innovation assessment through patent analysis", BP Abraham, SD Moitra - Technovation, 2001

GIS, Drones and Economic Development



- Port-au-Prince, Spring 2018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gle Terrain
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onal Geographic World Map
RI Light Gray Reference
RI World Ocean Basemap
RI World Imagery
RI World Shaded Relief
RI World Topography
RI World Street Map
RI World Physical Map
Aerial With Labels
Quest OpenStreetMap
nStreetMap
background
For development purposes only
United States
WASHINGTON
OREGON
IDAHO
NEVADA
ARIZONA
NEW MEXICO
COLORADO
WYOMING
MONTANA
NEBRASKA
KANSAS
MINNESOTA
SOUTH DAKOTA
WISCONSIN
ILLINOIS
MISSOURI
ARKANSAS
TENNESSEE
MISSISSIPPI
ALABAMA
GEORGIA
SOUTH CAROLINA
NORTH CAROLINA
VIRGINIA
Minneapolis
Toronto
Chicago
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Indianapolis
Washington
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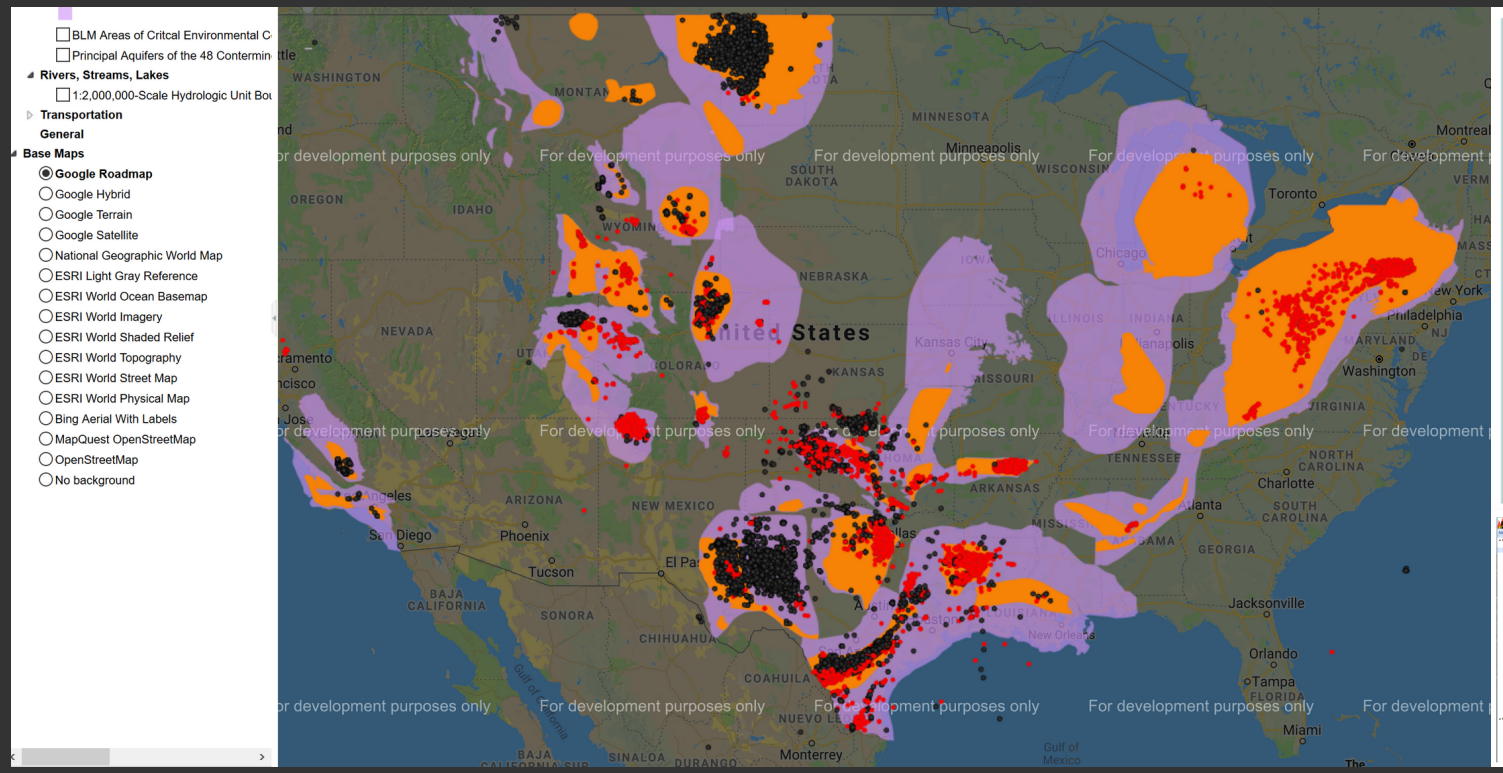
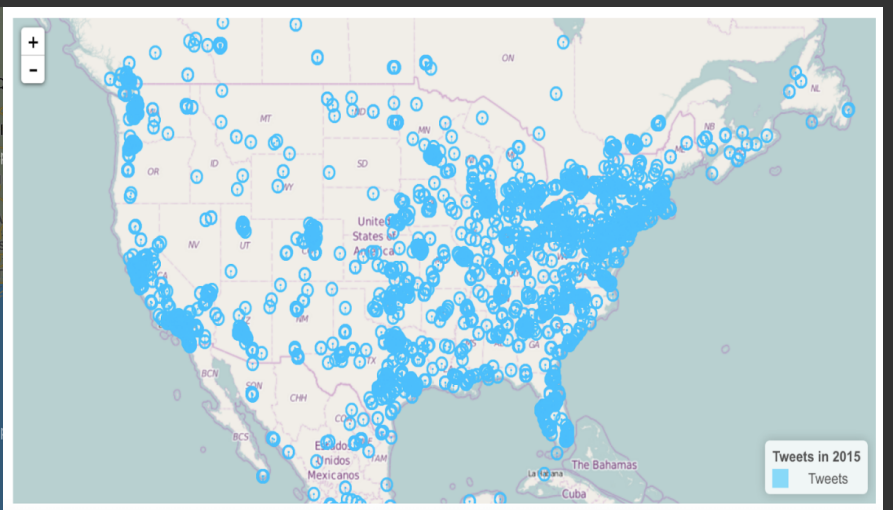
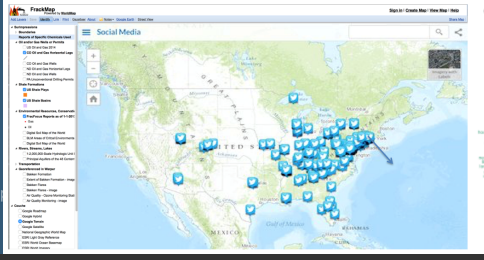
Dallas
Houston
New Orleans
San Diego
Monterrey
BAJA CALIFORNIA
SONORA
CHIHUAHUA
COAHUILA
NUEVO LEON
SINALOA
DURANGO
Gulf of California
Gulf of Mexico







Opinion Formation: "Relevant" words by count

Frackmap Project

- The Wow Effect: Analysing 60,000 geo-located tweets and (10,000; 600) peer-reviewed articles revealed a very high acceptability despite the major concerns of the scientific community (seismicity, health & environmental impacts, occupational health)

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Frackmap Project

1 Research Question: In countries embracing a booming controversial industry (fracking), is there resonance or dissonance between the public's risk perception and the state of academic research?

2 Category: Industrial Risks, Risk Perception, Public Health

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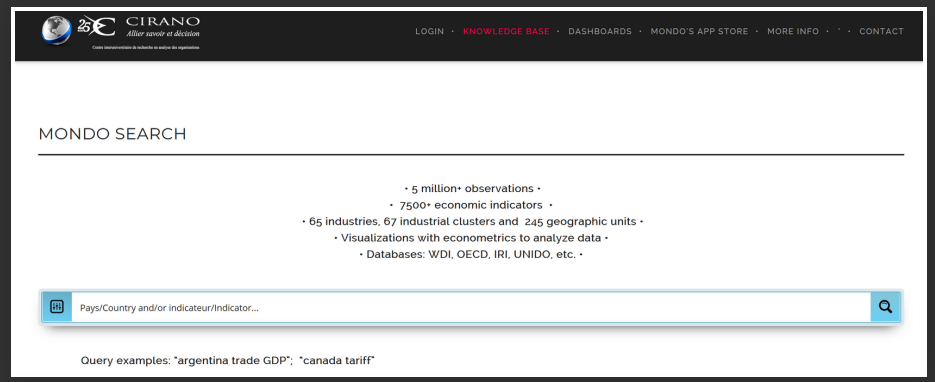
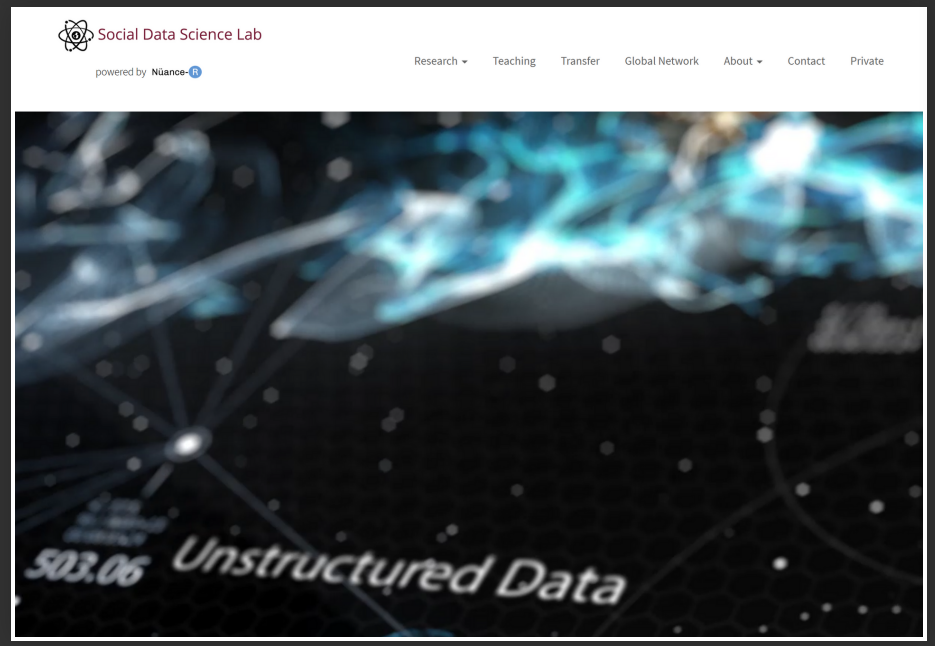
Conclusion


CIRANO
Allier savoir et décision
LOGIN · KNOWLEDGE BASE · DASHBOARDS · MONDO'S APP STORE · MORE INFO · ' · CONTACT
MONDO SEARCH
• 5 million• observations •
• 7500• economic indicators •
• 65 industries, 67 industrial clusters and 245 geographic units •
• Visualizations with econometrics to analyze data •
• Databases: WDI, OECD, IRI, UNIDO, etc. •
Pays/Country and/or indicateur/Indicator...
Query examples: "argentina trade GDP"; "canada tariff"


Social Data Science Lab
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Research
Teaching
Transfer
Global Network
About
Contact
Private
503.06 Unstructured Data

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CIRANO
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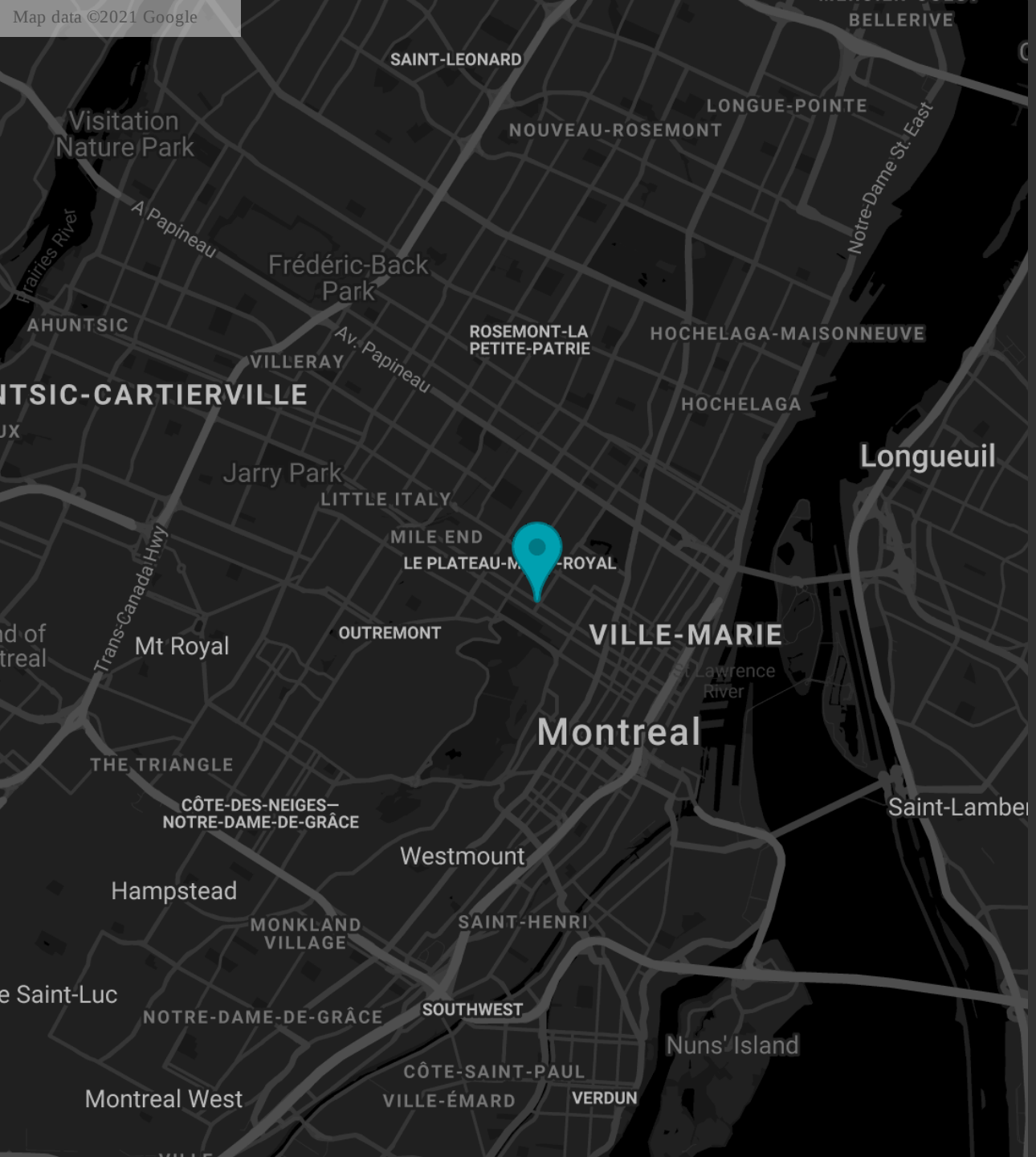

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thierry.warin@hec.ca